Commonwealth of Kentucky
Division for Air Quality

PERMIT STATEMENT OF BASIS

Draft Construction Permit No. VF-01-001
THE HENNEGAN COMPANY
7455 EMPIRE DRIVE, FLORENCE, KY
September 17, 2002
KEITH METZKER, REVIEWER
AFS Plant I.D. # 21-015-00088
Application Log # 53654

SOURCE DESCRIPTION:

Hennegan is a Title V source but the source has not been issued a final Title V permit. Therefore, construction at this source must be permitted separately from the remainder of the source. Once controls are factored into the potential to emit from the proposed construction, the new press applied for is a minor addition.

Hennegan has applied to construct/operate an 8-color web heat set ink press. The new press will have 8 applicators which use a fountain solution to distinguish print area from non-print area, an oven vented to a regenerative thermal oxidizer, and a chiller. The press also has a computer controlled automated wash which uses an expanding diaphragm to clean ink from the press.

COMMENTS:

Type of control and efficiency

Pollution prevention practices will be used to avoid emissions and a regenerative thermal oxidizer (RTO) will be used to control emissions.

A RTO shall be installed to control emissions from the press oven. Control efficiency will be determined by stack testing and is required to be at least 90% for all VOC emissions entering the control devise. The manufacturer estimates that the RTO will have a VOC control efficiency of 99%.

Guidance found in the Draft CTG document Control of Volatile Organic Compound Emissions from Offset Lithographic Printing and the ACT document Offset Lithographic Printing was used to estimate the capture efficiency that would be realized for all emissions from the press. Based on the guidance, 100% of the emissions from the heat set inks will be captured to the control device if the oven maintains negative pressure. 40% capture will be realized on the automatic cleaning solution emissions. And, 70% capture will be realized on fountain solution emissions. Alternative capture efficiency estimates may be used if the source wishes to determine the capture efficiency through testing.

Fountain solutions will not contain alcohol. By using alcohol substitutes in the fountain, VOC emissions are reduced. The alcohol substitutes have a lower vapor pressure than alcohol. By using the substitutes, VOC emissions are significantly reduced. Some of the fountain emissions will be controlled (control efficiency is described above).

COMMENTS (CONTINUED):

Type of control and efficiency (continued)

Manual cleaning materials will have a vapor pressure below 10 mm Hg and will be stored in closed containers. Through these measures, the division estimates that 50% of the VOCs used can be prevented from becoming emissions. This emission prevention is based on the above EPA guidance.

Automatic cleaning material emissions are not assumed to be preventable. However, some of the automatic cleaning emissions will be controlled (control efficiency is described above).

Emission factors and their source

The oven uses natural gas to directly heat the web. The emission factors for the natural gas combustion are based on AP-42, Chapter 1, Section 4 emission factors for small boilers.

Particulate emissions from the press have been assumed to be minimal as long as the press is operated properly, appropriate inks are used, and natural gas is burned in the oven. This is based on the Method 5 test performed April 6 and 7, 1976 at a web press used by Danner Press located in Canton, Ohio.

VOC emission factors for the press will vary. The emission factors are based on guidance found in the Draft CTG document Control of Volatile Organic Compound Emissions from Offset Lithographic Printing. Alternative emission factors may be used by the source if testing is performed and approved by the division prior to their utilization.

VOCs contained in inks used will have an 80% emission factor (some VOCs are believed to be retained in the web).

VOCs contained in fountain solutions used will have a 100% emission factor and no VOCs will remain in waste fountain solutions.

VOCs contained in automatic cleaning materials used will have a 100% emission factor.

VOCs contained in manual cleaning materials used will have a 50% emission factor. Approximately 50% of the cleaning material is not emitted because it remains in rags. As long as the rags are enclosed, much of the VOCs remaining in the rags will not be emitted.

Applicable regulations

Currently, Hennegan is allowed to have VOC emissions above 100 tons/yr. This defines the source as a major VOC source. Since the source is major for VOC and no regulations specifically apply to offset lithographic printing, regulation **401 KAR 50:012**, General application, requires control procedures that are reasonable, available, and practical to be applied. The division has determined what these procedures should be based on the presumptive norm established by EPA.

Requirements resulting from application of 401 KAR 50:012 are:

No alcohol shall be used in fountain solutions.

Fountain solutions applied shall contain less than 5% VOC by weight.

Cleaning solutions shall have a vapor pressure < 10 mm Hg.

Cleaning solutions, including used solvent laden towels, shall be stored in closed containers.

Control efficiency on VOCs in the dryer exhaust shall be at least 90%.

See the permit for additional details of 401 KAR 50:012 requirements.

Regulation 401 KAR 59:010, New process operations, will apply since the affected facility will commence after July 2, 1975. Application of the regulation will cause little impact on this source since particulate emissions from the process are minimal.

COMMENTS (CONTINUED):

Applicable regulations (continued)

Regulation 401 KAR 51:052, Review of new sources in or impacting upon nonattainment areas, applies to major sources or major modifications commenced after September 22, 1982 located in a nonattainment area. This regulation had potential applicability to Hennegan in the past but since Florence has been redesignated as attainment, 401 KAR 51:052 does not apply.

Regulation 401 KAR 51:017, Prevention of significant deterioration of air quality, applies to major sources or major modifications commenced after September 22, 1982 located in an attainment area. Based on currently applicable permits issued by the division and an estimated VOC potential of 22.4 tons/yr for press 02SF, Hennegan is not defined as a major source under this regulation. Hennegan's VOC emissions are limited to approximately 228 tons/yr. However, Hennegan has not always complied with permit limitations. Therefore, Hennegan's VOC potential emissions are not limited to 228 tons/yr. If potential emissions reverted to the physical limitations on the presses, potential emissions would appreciably exceed 250 tons/yr, the major source threshold for 401 KAR 51:017. However, the division clearly does not intend to permit Hennegan with potential emissions in excess of 250 tons/yr. See draft permit V-98-036 for limitations intended at Hennegan. Since actual emissions from the source were never above 200 tons, the division believes that it is appropriate and permissible to treat Hennegan as a source with potential VOC emissions below 250 tons/yr. Based on this determination, construction of press 03W is not a major modification and 401 KAR 51:017 does not apply.

Regulation 40 CFR 64, Compliance assurance monitoring, applies since a control device is used to achieve compliance with an emission limitation and the pre-control device emissions are potentially greater than 100 tons/yr. However, requirements resulting from applicability of 40 CFR 64 will not be realized until Title V permit renewal or reopening for cause.

40 CFR 63 Subpart B, Requirements for control technology determinations for major sources in accordance with Clean Air Act Sections, Sections 112(g) and 112(j), does not apply to the press because potential HAP emissions from the press are below major source thresholds.

PERIODIC MONITORING:

No monitoring is required for compliance with mass and opacity standards applicable to the press since presses of this type that are operated and maintained consistent with manufacturer recommendations will always comply with the limits.

Direction of airflow at the oven exhaust inlet will be monitored continuously to demonstrate that 100% of the ink VOC emissions are captured.

RTO temperature will be monitored continuously to demonstrate the control efficiency actually achieved on web press VOC emissions.

Storage of wash solvents shall be monitored daily to verify that used and unused portions are in closed containers. This degree of monitoring should be a sufficient reminder to personnel of the operating limitation. It would be impractical to require continuous monitoring of wash solvent storage.

PERIODIC MONITORING (CONTINUED):

Monitoring and record keeping will be used to demonstrate that fountain solutions applied at the press have a VOC content no greater than 5% (by weight). Water is to be included in the fountain solution ingredients. By monitoring and recording the valve settings for ingredients supplied to the press's dampening system, VOC content of the applied fountain solutions can be demonstrated to be within the 5% limit. By monitoring fresh fountain solutions, proper operation of metering equipment is verified. This combination should indicate compliance at all times. Greater monitoring would result in additional useful data only if there is a malfunction. Actual press operation and the periodic monitoring required will make such a malfunction quickly noticed. Given the difficulty associated with determining a more accurate and continuous compliance demonstration, the fountain solution monitoring described in the permit seems adequate.

EMISSION AND OPERATING CAPS DESCRIPTION:

See Operating Limitations and Emission Limitations in Section B of the permit.

The emission limitations in the permit are required to comply with 401 KAR 50:012. Hennegan would have to accept higher emission limitations to receive any emission reduction credits. As the draft permit is written, no emission reduction credits will be realized.

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or record keeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has not incorporated these provisions in its air quality regulations.